CURRICULUM VITAE

JOHN PHILLIP CARTER

Contents

John Phillip Carter AM, FAA, FTSE, FIEAust

SUMMARY

John Carter was educated at the University of Sydney and Kings' College, University of London. He graduated in Civil Engineering in 1973, and was awarded a PhD in Geomechanics in 1977, and a higher doctorate (DEng) in 2003, from the University of Sydney. He was a cadet and graduate engineer with the Electricity Commission of New South Wales and he has held academic appointments at the University of Cambridge, the University of Queensland, the University of Sydney, Cornell University, University of Hong Kong, Technical University Graz, and since 2006 with the University of Newcastle. He was promoted to a personal chair at the University of Sydney in 1990 and appointed as its Challis Professor in Civil Engineering in 1999. From 1989 until 2005 he was the Director of the Centre for Geotechnical Research and from 1995 until 1999 he served as Head of the Department of Civil Engineering. He has also served for periods as Associate Dean for Research and Acting Dean of the Faculty of Engineering at the University of Sydney. In 2004 he was elected as Chair of the Academic Board at the University of Sydney, a senior position that placed him as one of the Principal Officers of the university with major responsibilities for academic governance. In February 2006 he took up appointment as the Pro-Vice-Chancellor, Faculty of Engineering and Built Environment at the University of Newcastle, a position he held until April 2013. He is a former National Chair of the Australian Geomechanics Society. In 2003 he was elected as a Fellow of the Australian Academy of Technological Sciences and Engineering in recognition of his contributions to engineering research and practice. In January 2006 he was appointed as a Member of the Order of Australia (AM) for his contributions to civil engineering through research into soil and rock mechanics and as an adviser to industry. In 2009 he was elected as a Fellow of the Australian Academy of Science in recognition of "his work on computational and experimental geomechanics: prediction of the behaviour of geotechnical structures".

John Carter has more than 40 years of experience in teaching, research and consulting in civil, geotechnical and offshore engineering. His research interests include analytical and numerical modelling, soil-structure interaction, rock mechanics, behaviour of cemented and uncemented carbonate soils, tunnelling, soft soil engineering and offshore foundations. He has attracted more than $27 million in competitive research funding and been associated with development projects attracting additional grants of more than $4 million. He is the author of more than three hundred refereed technical papers in geotechnical engineering and engineering mechanics, covering a diverse range of topics from theoretical mechanics to experimental applications. He has consulted widely to industry on a range of geotechnical projects including soft clay foundations, offshore foundations, retaining walls, buried structures and tunnelling. He has also been retained as a consultant on numerous offshore foundation problems for major oil and gas companies, including BHP, Esso, Woodside, Wapet, Bond Oil, Amoco and Exxon. He has acted as an expert witness for courts in NSW and Queensland. From 1995 until December 2013 he was a consultant director of Advanced Geomechanics, a medium-size geotechnical engineering consultancy based in Perth, providing specialist advice to the oil and gas sector on foundation problems and on-shore and offshore site investigations. He has also been involved in commercialization of research and the marketing of its outcomes, including his own specialist geotechnical software. Between 1997 and 2000 he was a director, representing the interests of the University of Sydney, of Benthic GeoTech Pty Ltd, a $10 million joint venture company that conceived, designed, built and now operates PROD, the Portable Remotely Operated Drill, which is used in water depths out to 2000 m to penetrate the ocean floor in order to conduct in situ tests and recover core samples from the sea floor. He is a former Director and Chairman of UoN Singapore, a controlled entity of the University of Newcastle, responsible for delivering its degree programs in Singapore. In May 2008 he was appointed by the New South Wales State Treasurer as a member of the Board of Newcastle Port Corporation, a position he held until June 2014. He is currently a director of Engineering Aid Australia. In 2009 he became a Graduate Member of the Australian Institute of Company Directors and in 2012 a Fellow of the Australian Institute of Building. He is also a Fellow of Engineers Australia.

PERSONAL DETAILS

Birth: 12 June 1950

Nationality: Australian

Marital status: Spouse Heather Jean Carter
Two daughters Anna Jane Carter
Sophie Elizabeth Carter

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Newcastle NSW 2300
AUSTRALIA

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Web: http://livesite.newcastle.edu.au/cgmm/profiles/profile_john_carter.page?

QUALIFICATIONS

1973 Bachelor of Engineering in Civil Engineering (Hons I), 12 May 1973, The University of Sydney

1978 Doctor of Philosophy, 6 February 1978, The University of Sydney. Thesis entitled: "Finite Deformation Theory and its Application to Elastoplastic Soils".

2003 Doctor of Engineering, 28 November 2003, The University of Sydney. Thesis entitled: "Numerical Modelling in Geomechanics".

2009 Australian Institute of Company Directors
Company Directors Course Diploma

PRIZES AND AWARDS

1971 Awarded the Association of Consulting Structural Engineers of NSW Prize No. 1 (3rd year civil engineering).

1973 Awarded the Institution of Engineers, Australia, Prize for the best undergraduate thesis in civil engineering.

1974 Eleanor Sophia Wood Travelling Scholarship, awarded by The University of Sydney for graduate research work at Kings' College, University of London.

1977 British Council Travel Grant, awarded for post-doctoral research at Cambridge University.

1986 Visiting Associate Professor, School of Civil and Environmental Engineering, Cornell University, USA.

1986 Engineering Foundation Fellowship, University of Western Australia.

1989 Engineering Foundation Fellowship, University of Western Australia.

1989 Fellow, Institution of Engineers, Australia.

1990 Prize for Best Paper Presentation, 3rd International Symposium on Pressuremeters, Oxford, UK.

1994 Prize for Outstanding Paper, International Association for Computer Methods and Advances in Geomechanics.

1996 Visiting Fellowship, Technical University Graz.

1998 Szeto-Wai Fellowship, University of Hong Kong.

2001 Chandra Desai Medal, awarded by the International Association For Computer Methods and Advances in Geomechanics, in January 2001, "for outstanding and sustained contributions to the solution of a wide range of geotechnical problems including development and application of large deformation analyses, effects of pile installation, interpretation of *in situ* tests, analysis of jointed rock masses, linear and non-linear problems in porous media including their thermomechanical response, foundations for offshore structures, development of constitutive relations, particularly for structured soils, and for the analysis of cyclic loading".

2003 Elected as a Fellow, Australian Academy of Technological Sciences and Engineering.

2004 Cross-Canada Lecturer, Canadian Geotechnical Society, April 2004.

2005 E.H. Davis Lecturer, Australian Geomechanics Society.

2005 Prize for Outstanding Contributions, awarded by the International Association For Computer Methods and Advances in Geomechanics, in June 2005, "for sustained contributions to the advancement and implementation of numerical modelling in geomechanics, and especially constitutive modelling of geomaterials".

2006 Appointed by the Governor General of Australia as a Member in the Order of Australia, for contributions to civil engineering through research into soil and rock mechanics and as an adviser.

2006 Best Paper Award, International Society for Lowland Technology (ISLT2006)

2009 Elected as a Fellow, Australian Academy of Science.

2010 Engineers Australia 100 Most Influential Engineers

2013 Elected as a Fellow, Australia Institute of Building

2013 Manby Prize of the Institution of Civil Engineers, London for the publication: Nazem, M., Carter J. P., Airey, D.W. and Chow, S.H, (2012) Dynamic analysis of a smooth penetrometer free-falling into uniform clay, *Géotechnique*, 62 (10), 893-905.

POSITIONS HELD

1969-1973 Trainee and graduate engineer, Electricity Commission, NSW.

1973-1976 Research Student, Department of Civil Engineering, University of Sydney, Australia.

1974-1975 Visiting Research Scholar, Department of Civil Engineering, Kings' College, University of London, UK.

1977-1979 Post-doctoral Research Assistant, Engineering Department, University of Cambridge, UK.

1979-1981 Lecturer, Department of Civil Engineering, University of Queensland, Australia.

1982 Senior Lecturer, Department of Civil Engineering, University of Queensland, Australia.

1982-1984 Lecturer, School of Civil and Mining Engineering, University of Sydney, Australia.

1985-1988 Senior Lecturer, School of Civil and Mining Engineering, University of Sydney, Australia.

1986 Visiting Associate Professor, School of Civil and Environmental Engineering, Cornell University, USA.

1988-1990 Reader, School of Civil Engineering, University of Sydney, Australia.

1989-2005 Director, Centre for Geotechnical Research, University of Sydney, Australia.

1990-1999	Professor, School of Civil and Mining Engineering, University of Sydney, Australia (subsequently Department of Civil Engineering).
1999-2005	Challis Professor in Civil Engineering, University of Sydney, Australia
1995-1999	Head, Department of Civil and Mining Engineering, University of Sydney, Australia.
1995-2005	Deputy Director, Civil Engineering Foundation, University of Sydney.
1996-2013	Consultant Director, Advanced Geomechanics, Perth, WA.
1997	Acting Dean, Faculty of Engineering, University of Sydney, Australia (4 months).
1997-2005	Senior Researcher and Leader of the Foundations Research Strand, ARC Special Research Centre for Offshore Foundations, University of Western Australia and University of Sydney.
1997-2000	Director, Benthic GeoTech Pty Ltd (BGT).
2000-2002	External Examiner, Department of Civil and Structural Engineering, University of Hong Kong.
2002-2004	Chair, Engineering and Environmental Sciences Expert Advisory Committee, Australian Research Council.
2003-2004	Associate Dean for Research, Faculty of Engineering, The University of Sydney.
2003	Deputy Chair, Academic Board, The University of Sydney.
2003-2005	Chair, Research Committee, The University of Sydney.
2004-2005	Chair, Academic Board, The University of Sydney.
2005-2009	Vice-President for Australia-New Zealand, International Society for Soil Mechanics and Geotechnical Engineering (2005-2009).
2008-2014	Board Member, Newcastle Port Corporation
2009	Pro Vice-Chancellor Research, The University of Newcastle
2006-2013	Pro Vice-Chancellor, Faculty of Engineering and Built Environment and Dean of Engineering, The University of Newcastle.
2006-2013	Director, UoN Singapore, a Singapore-based company wholly owned by the University of Newcastle.
1995-2013	Consultant, Advanced Geomechanics, a geotechnical consulting company based in Perth, WA, involved in the offshore oil and gas sector.
2008-2014	Director and Board Member, Newcastle Port Corporation.
2013-present	Emeritus Professor, The University of Newcastle

CURRENT POSITIONS

- Emeritus Professor, The University of Newcastle.
- President, International Association for Computer methods and Advances in Geomechanics.
- Director and Board Member, Engineering Aid Australia.

MEMBERSHIP OF LEARNED AND PROFESSIONAL SOCIETIES

- Fellow, Institution of Engineers, Australia.
- Member, American Society of Civil Engineers.

- Member, International Society for Soil Mechanics and Geotechnical Engineering.
- Member, International Society for Rock Mechanics.
- Member, International Association of Engineering Geology.
- Member, International Association for Computer Methods and Advances in Geomechanics.
- Member, Australian Geomechanics Society.
- Member, British Geotechnical Society.
- Member, Australian Institute of Company Directors.
- Fellow, Australian Academy of Technological Sciences and Engineering.
- Fellow, Australian Academy of Science.
- Fellow, Australian Institute of Building.

LEADERSHIP, ADMINISTRATION, MANAGEMENT AND GOVERNANCE

University of Newcastle

Pro Vice-Chancellor, Faculty of Engineering and Built Environment – 2006-2013

- Providing academic leadership and management of a Faculty consisting of around 200 staff members, 3500 students and three Schools (Architecture and Built Environment, Engineering, Electrical Engineering and Computer Science.

Pro Vice-Chancellor, Research - 2009

- Providing research leadership and support for the Deputy Vice-Chancellor, Research. The role includes responsibility for research integrity and quality assurance.

University of Sydney

Chair, Academic Board – 2004-2005

- Provided academic leadership for the entire university as the elected chair of its governing academic body. The Chair of Academic Board is a nominated Principal Officer of the University of Sydney and an ex-officio member of Senate, the governing body of the University.

Head, Department of Civil Engineering – 1995-1999

- Provided academic leadership and line management at a time of severe financial restraint in the Australian university sector.
- Major involvement in restructuring of the department's staffing profile to meet the challenges posed by the sharp changes in funding arrangements that occurred during 1995-1999.
- Managed a growth in the intake of undergraduate students in Civil Engineering (from approximately 75 per annum to more than 120 per annum) that took place during this period as Head of Department.
- Responsible as Head of Department for the introduction of new degree programs: BE(Civil – Structural), BE(Civil – Geotechnical), BE(Civil – Environmental), BE(Civil – Construction Management).
- Oversight of the start-up of a new undergraduate degree program in Engineering Project Management.
- Oversight of a suite of internet-based, full fee-paying graduate courses in Project Management that was put in place during the period as Head of Department. Provided vital seed funding for this venture. Subsequently, these courses achieved significant penetration locally and overseas, particularly in Asia.

- Took the initiative to appoint a full-time development officer funded by the Civil Engineering Foundation leading to revitalisation and growth of the Civil Engineering Foundation at the University of Sydney.

Acting Dean, Faculty of Engineering – March-July, 1997

- Leadership of the Faculty during transition between the two Deans, Professor J. Glastonbury and Professor J. Raper.

- This was a crucial period in the life of the faculty, as it also corresponded to a major re-structuring of the University of Sydney by the Vice-Chancellor, Professor Gavin Brown. The Faculty of Engineering was relocated from the "Professional Faculties Group" to the "College of Sciences and Technology" during this period.

- Involved as Acting Dean in the negotiations for a new University funding model.

Director, Centre for Geotechnical Research – 1990-2005

- Leadership and management of the Centre and its research programs and significant consulting activities, taking over this role from the founding Director, Professor H.G. Poulos.

Faculty and University Committees

1990-05	Member, Various Faculty and Central Committees considering academic promotions.
1995-99	Chair, ARC Small Grants Panel for Engineering and Earth Sciences.
1996-05	Member, Academic Board.
1998-03	Member, University Research Committee.
1998-01, 03	Member, University Information Technology Committee.
2000-01	Member and Chair (2001), ARC Small Grants Panel, College of Sciences and Technology.
2001-03	Chair, College of Sciences and Technology, Research Advisory Committee.
2002	Member, Review Panel, School of Physics, the University of Sydney.
2003-05	Chair, University Research Committee.
2003-04	Associate Dean for Research, Faculty of Engineering, The University of Sydney.
2003	Member, Review Panel, School of Geosciences, the University of Sydney.
2003	Deputy Chair, Academic Board.
2004-05	Member, Excellence in Teaching Committee
2004-05	Chair, Academic Board of the Australian Graduate School of Government
2004-05	Member, Vice-Chancellor's Advisory Committee
2004-05	Chair, Academic Board.
2004-05	Fellow of Senate
2004-05	Member, Finance Committee
2004-05	Member, Senate/Sports Liaison Committee
2004-05	Member, Student Administration Management reference Group
2004-05	Chair, Admissions Sub-Committee of Undergraduate Studies Committee

2004-05 Chair, Academic Board Review Teams, various Faculties, the University of Sydney.

Beyond the University

Academic Reviews

1998 Member, Review Panel, Department of Civil Engineering, University of Western Australia.

2000 Chairman, Review Panel, Department of Civil Engineering, University of Queensland.

2005 Member, Review Panel, Faculty of Engineering, James Cook University.

2009 Member, Review Panel, Academic Board, The University of Sydney.

2008 Chair, Review Panel, Engineering Department, Griffith University.

2011 Member, Review Panel, Department of Civil Engineering, University of Queensland.

External Appointments Committees

2003 Chair of Civil Engineering, The University of Melbourne.

2004 Chair of Civil Engineering, James Cook University.

2005 Chair of Civil Engineering, The University of Queensland.

2014 Member, Built Environment Panel, Hong Kong Research Assessment Exercise.

Australian Research Council

1988-01 Assessor of Large Project Grants and Collaborative Industry Grants in Engineering.

2002-04 Chair, Engineering and Environmental Sciences Expert Advisory Committee.

2004 Chair, Research Networks Selection Committee.

2005 Chair, Federation Fellowships Selection Committee, 2005.

2008- Assessor of Large Project Grants and Collaborative Industry Grants in Engineering (OzReader).

2009 Member, Future Fellowships Selection Committee

2009 Member, ERA Panel of Experts, Engineering and Environmental Science

2010 Member, ERA Panel of Experts, Engineering and Environmental Science

Australian Geomechanics Society

1990-04 Member, Sydney Chapter Committee.

1996-03 Member, National Committee.

1997-98 Chairman, Sydney Chapter Committee.

2000-01 Chairman, National Committee - Oversight of the introduction of a formal Constitution for the Society preparatory to incorporation in the ACT.

2002-03 Immediate Past Chairman, National Committee.

2005-09 Member, National Committee.

2005-09 Nominated by the Society as the Vice-President for Australia New Zealand of the International Society for Soil Mechanics and Geotechnical Engineering.

Engineers Australia

1998-99 Member, Sydney Division Committee

Australian Academy of Technological Sciences and Engineering

2004-2005 Member, Education Committee

The Women's College, University of Sydney

2000-2012 Member, Building and Development Committee.

2002-2012 Member of College Council.

Corporate Experience

Advanced Geomechanics Pty Ltd

- Director of Advanced Geomechanics (from 1995 until December 2013) a Geotechnical consultancy based in Perth, WA, specialising in offshore foundation investigation and design. In 2012 the company employed 65 professional engineers and geologists. In December 2013 the company was purchased by Fugro N.V., a company registered in the Netherlands and listed on the Amsterdam Stock Exchange.

Benthic Geotech Pty Ltd (BGT)

- Closely involved with the conception, early development and eventual commercialisation of PROD, the portable, remotely operated seabed drill. PROD is a revolutionary robotic drilling device capable of penetrating the ocean floor (in water depths out to 2000 m), conducting in situ tests in the seabed and recovering core samples.
- Appointed as a Director for the period 1997-2000, representing the interests of the University of Sydney, of the spin-off company (BGT) that commercialised PROD.
- While in the role of director the company attracted more than $4million capital investment and designed and built PROD.
- BGT is now a successful commercial entity, providing drilling and sampling services largely to the offshore petroleum industry.

UoN Singapore Pte Ltd

- Director of UoN Singapore Pte Ltd, a controlled entity of the University of Newcastle delivering degree programs of the University of Newcastle in Singapore.

Newcastle Port Corporation

- Member of the Board of Directors of this State Owned Corporation (SOC), appointed by the New South Wales State Treasurer in 2008. Member of the Audit Committee, Member of the Safety, Health and Environment Committee, Member, Remunerations and Nominations Committee.

International Energy Centre Pty Ltd

- Member of the Board of Directors from its inception in 2011 until April 2013.

TEACHING

University of Sydney – 1973-1976

- BE Laboratory and tutorial supervision in courses in Materials and Soil Mechanics.

Cambridge University – 1977-1979

- BA Undergraduate "supervisions" (tutorials for groups of 2 and 3 students) in courses in Dynamics and Soil Mechanics, for St Margaret's College and Churchill College.

- MPhil Development and presentation of lectures in Theoretical Soil Mechanics, including the application of numerical methods to the solution of boundary and initial value problems.

University of Queensland – 1979-1982

- BE Development and presentation of lectures, tutorials, assessment and examinations in undergraduate courses in Soil Mechanics and Geotechnical Engineering.

- MEngSc Development and presentation of Masters course lectures and assessment in Advanced Theoretical Soil Mechanics, Slope Stability Analysis and Foundation Engineering.

University of Sydney – 1982-2005

- BE Development and presentation of lectures, tutorials, assessment and examinations in undergraduate courses in Soil Mechanics, Rock Mechanics for Mining Engineers, Geotechnical Engineering, Environmental Geotechnics, Engineering Computing and Introduction to Civil Engineering.

- MEngSc & MES
  Development and presentation of Masters course lectures and assessment in Theoretical Soil Mechanics, Foundation Engineering, Rock Mechanics, Analysis and Design of Pile Foundations and Environmental Geotechnics.

- From 1990-2005, as Professor of Geotechnical Engineering, responsible for curriculum development and delivery of all Geotechnical courses in the Civil Engineering degree program.

RESEARCH

Interests

Soil mechanics and geotechnical engineering, foundations, environmental geotechnics, offshore geotechnics, rock mechanics, soil-structure interaction, numerical and analytical methods.

Research Grants

Year	Project	Investigator	Grant Body	Grant Scheme	Funding
1983	Foundations on Sydney Sandstone	Carter	USyd	URG	$29,000
1984	Thermomechanical Phenomena in Soil and Rock	Booker & Carter	ARGS	Project	$12,000
1985-1986	Shear Behaviour of Joints and Interface	Carter & Choi	CSIRO/USyd	Project	$26,600
1987-1989	Mechanics of Calcareous Sediments	Poulos, Booker & Carter	ARC	Large Grant	$171,000
1989	A Cost Saving Integrated Approach to Coal Waste Disposal and Rehabilitation	Carter	NERDDC	Project	$15,000
1989	Analysis of Surface Excavations in Jointed Rock Masses	Carter, Choi & Mulhaus	CSIRO/Usyd	Project	$7,000
1990-1992	Mechanics of Calcareous Sediments	Carter, Booker & Airey	ARC	Large	$217,900
1994	Effects of Pollutants on Hydraulic Conductivity of Clay	Carter & Airey	ARC	Small Grant	$35,000
1994-1996	A Model for Microcrack Coalescence	Stump & Carter	ARC	Small Grant	$60,000
1994-1996	Constitutive Behaviour of Fissured Soils and Rocks	Carter	ARC	Large Grant	$174,080
1997-1999	Large Deformation Analysis of Soft Soils	Carter	ARC	Large Grant	$172,329
1997-1999	Liquefaction of Offshore Foundations in Carbonate Soils	Carter & Fahey	ARC	Large Grant	$196,980
1997-2005	Centre for Offshore Foundation Systems	Randolph, Fahey, Carter, Airey	ARC	Special Research Centres	$7,275,000

Year	Project	Investigator	Grant Body	Grant Scheme	Funding
1999	Pipeline Backfill Specifications	Carter	CRC for Welding	Project Grant	$44,000
1999	Truck-mounted In situ Soil Testing Facility	Yu, Sloan, Fityus, Carter, Airey, Small	ARC	RIEF	$400,000
1999-2001	Mechanical Behaviour of Rock Masses Reinforced with Rock Bolts and Cables	Carter	ARC	Large Grant	$195,000
2000-2001	Constitutive Modelling of Structured Soils	Carter	ARC	Large Grant	$147,414
2000-2002	Modelling of Radioactive Waste Buried in Clay	Carter & Airey	ARC	Large Grant	$224,991
2002-2004	Characterisation and modelling of structured soils	Carter & Airey	ARC	Discovery Project	$593,738
2003-2005	Effect of Tunnelling on Pile Foundations	Carter	ARC	Discovery Project	$341,184
2004-2007	Tunnelling in sedimentary rocks of the Sydney Basin	Carter, Small, Bernard & Baweja	ARC	Linkage	$249,000
2005-2007	The Effect of Tunnelling on Existing Rock Bolts	Small & Carter	ARC	Discovery Project	$286,249
2006-2010	Mechanics of dynamic loading and rapid penetration of soils	Airey & Carter	ARC	Discovery Project	$788,000
2008-2010	Unsaturated soil mechanics and risk assessment for mine waste management	Sheng & Carter	ARC	Discovery Project	$330,000
2011-2014	Dynamic soil-structure interaction	Carter, Nazem & Abbo	ARC	Discovery Project	$676,408
2011-2013	Geomechanics of multiple seam mining interactions	Merifield, Carter & Nazem	ARC	Discovery Project	$430,000
2011-2017	Centre of Excellence for Geotechnical Science and Engineering	Sloan, Carter et al.	ARC	Centre of Excellence (CE11E0047)	$14,400,000
				Total	**$27,497,873**

Supervision of Graduate Research Projects

Year Completed	Student	Degree	Thesis
1982	Ballard, M.	MEngSc	Influence of structural stiffness on differential settlement
1983	Morgan, R.	MEngSc	Analysis of pile groups with flexible pile caps
1985	Chan, K.S.	MEngSc	The effects of surface loading on a single pile
1985	McKerral, J.	MEngSc	The prediction of large deformations of embankments on soft soils
1985	Dao, Q.	MEngSc	The application of electric friction sleeve cone penetration tests in pile foundation design
1988	Yeung, S.K.	PhD	Application of cavity expansion model in geotechnical engineering
1989	Ooi, L.H.	PhD	The interface behaviour of socketed piles
1989	Bertuzzi, R.	MEngSc	Elastic analysis of mining subsidence
1990	Norman, M.	MEngSc	Slope Stability on Microcomputers (Wedge Block Methods)
1991	Boey, C.F.	PhD	Constant normal stiffness testing of cemented carbonate soils
1991	Alehossein, H.	PhD	Numerical analysis of jointed rock masses
1993	Shorten, G.G.	PhD	Geotechnical analysis of recent estuarine organ-calcareous silts, Fiji
1993	Bartel, M.A.	MEngSc	A design and analysis package for gravity retaining walls using interactive graphics
1994	Ghafoori, M.	PhD	Engineering behaviour of Ashfield shale
1994	Xiao, B.	PhD	Numerical simulation of deep excavations in rock masses
1994	Norman, M.	MES	Two-dimensional multiple wedge stability analysis

Year Completed	Student	Degree	Thesis
1995	Fernando, N.S.M.	PhD	Effects of surface loads on buried structures
1996	Kelleher, P.	PhD	Expanding piles in calcareous soils
1998	Zheng, X.	PhD	Bearing capacity problems in fissured soils and jointed rocks
1996	Amoroso, S.G.	MES	Dynamic cone penetrometer – in situ California Bearing Ratio for the city of Newcastle
1998	Pan, J.P.	PhD	Behaviour of cemented carbonate soils under inclined foundation loading
1999	Islam, M.K.	PhD	Constitutive models for carbonate sands and their application to footing problems
1999	Taiebat, H.	PhD	Three-dimensional liquefaction analysis of offshore foundations
2000	Ding, K.	ME	The behaviour of pipes constructed from rib-stiffened structural plate under iron ore stockpiles
2001	Deng, W.	PhD	Analysis of suction caissons subjected to inclined uplift loading
2001	Wang, C.X.	PhD	Large deformation and no-tension analysis of selected problems in Soil Mechanics
2005	Cameron, D.	PhD (part-time)	Behaviour of buried flexible pipes
2005	Poon, B.	PhD	Behaviour of circular footings on sand subjected to inclined loading
2008	Surjadinate, J.	PhD	Effect of tunnelling on pile foundations
2014	Suchowerska, A.	PhD	Geomechanics of multi-seam longwall coal mining
-	Avalle, D.	PhD	Mechanics of impact compaction
-	Kay, D.	PhD (part-time)	Effects of topography on ground subsidence induced by longwall coal mining

Invited Keynote Papers at Major International Conferences

1988 Constant Normal Stiffness Testing of North Rankin Calcarenite. International Conference on Calcareous Sediments; Perth, Australia. (with Johnston IW, Novello EA, Ooi LH).

1988 Triaxial Testing of North Rankin Calcarenite. International Conference on Calcareous Sediments, Perth, Australia. (with Johnston IW, Fahey M, Chapman G, Novello EA, Kaggwa WS).

1992 General Report: Analytical and Probabilistic Methods. 5th Australia-New Zealand Conference on Geomechanics; February, Christchurch, New Zealand.

1993 Analysis of Anisotropic Rock Masses. International Symposium on Application of Computer Methods in Rock Mechanics and Engineering, Xian, China (with Booker JR).

1994 Analysis of an Embankment on Marine Organic Silt, Fiji. 8th International Conference of the International Association for Computer Methods and Applications in Geomechanics, June, Morgantown, WV, USA. (with Shorten GG).

1996 Numerical Methods in Geotechnical Engineering - From Research to Practice. 7th Australia New Zealand Conference on Geomechanics, February, Adelaide. Australian Geomechanics Society.

1997 Recent Developments in the Analysis of Offshore Foundations. 9th International Conference of the International Association for Computer Methods and Applications in Geomechanics, April, Wuhan, China. (with Bransby MF, Taiebat H and Islam MK).

1999 A Review of Laboratory Testing of Calcareous Soils. 2nd International Conference on Engineering for Calcareous Sediments, February, Bahrain. (with Airey DW and Fahey M).

1999 Solving Boundary Value Problems in Geotechnical Engineering. 2nd International Symposium on Pre-Failure Deformation Characteristics of Geomaterials. July, Torino, Italy.

2000 Computing and Computer Modelling in Geotechnical Engineering. GeoEng2000, November, Melbourne, Australia. (with Desai CS, Potts DM, Schweiger HF and Sloan SW).

2001 Prediction Of The Lateral Capacity Of Suction Caissons. 10th International Conference of the International Association for Computer Methods and Advances in Geomechanics, January, Tucson, Arizona, USA. (with Deng W and Taiebat H)

2001 Foundations and Retaining Structures - Research and Practice. 11th International Conference on Soil Mechanics and Foundation Engineering, August, Istanbul, Turkey. (with Poulos HG and Small JC).

2002 Invitation to present a keynote paper at the 3rd Iranian International Conference on Geotechnical Engineering and Soil Mechanics, Tehran, December.

2004 Invitation to deliver the "Cross Canada Lecture Tour" in April 2004 by the Canadian Geotechnical Society (12 lectures in 11 different Canadian cities).

2005 Numerical and Semi-Analytical Techniques for Footings Subjected to Combined Loading. Invited Keynote Paper at the 11th International Conference of the International Association for Computer Methods and Advances in Geomechanics, June, Turin, Italy.

2005 Review of the Structured Cam Clay Model. Soil Constitutive Models. Invited Paper American Society of Civil Engineers. Austin, Texas (with Liu M)

2005 Who Needs Constitutive Models. E.H. Davis Memorial Lecture delivered to the Australian Geomechanics Society, 2005 (5 Australian cities).

2005 Simulating the Undrained Behaviour of Cemented Clays. Invited Paper, 10th National Convention on Civil Engineering, Thailand, Ambassador City Jomtien, Pattaya, Thailand (with Liu, MD and Horpibulsuk, S).

2006 Application of Structured Soil Models to Shallow Footing Problems. Invited Keynote Lecture at GeoShanghai, Shanghai, China, 2006.

2008 Dynamic Analysis of Geotechnical Problems by Arbitrary Lagrangian-Eulerian Method. Invited Theme Paper, 12th International Conference of the International Association for Computer Methods and Advances in Geomechanics, Goa, India (with Nazem, M).

2008 Predicting Foundation Behaviour on Structured Soils. Invited Keynote Lecture at the Indian Geotechnical Conference, Bangalore, India, 2008 (with Liu, MD and Liyanapathirana, S).

2009 Modelling Natural Soils Using Structured Cam Clay. Invited Keynote Lecture at the Thailand Civil Engineering Conference, May 2009 (with Liu, MD and Horpibulsuk, S).

2010 Dynamic Analysis of Free-Falling Penetrometers in Soil Deposits, Invited Keynote Lecture at the GeoFlorida 2010, ASCE, February 2010 (with Nazem, M Airey, DW and Chow, SH)

2012 Analysis of dynamic penetration of soils, (Keynote Lecture *at 22nd Australian Conference on the Mechanics of Structures and Materials, ACMSM 22*, From Materials to Structures: Advancement through Innovation, Sydney, Australia (with Nazem, M)

2013 Analysis of Dynamic Loading and Penetration of Soils – Application to site investigation and ground improvement, Invited Keynote Lecture at *International Conference on Geotechnical Engineering, ICGE 12*, Hammamet, Tunesia, 21-23 February 2013. (with Nazem, M and Airey, DW)

Publications

- Author of more than 300 technical papers in refereed journals and conferences in geotechnical engineering and numerical methods. (See separate list).

PROFESSIONAL, LEARNED SOCIETY AND CONTINUING EDUCATION ACTIVITIES

Professional Outreach

1980-82 Member, Queensland Committee, Australian Geomechanics Society.

1985-90 Member, Subsidence Research Steering Committee (and Mathematical Modelling Sub-Committee), NSW Department of Mineral and Energy.

1986 Member, Organising Committee, 9th Australasian Conference on Mechanics of Structures and Materials, Sydney.

1988 Foundation Member, Australian Chapter of the International Association of Computational Mechanics.

1988 Member (representing Australasia), Organising Committee, International Conference on Rheology in Soil Mechanics, Coventry, U.K.

1991 Member, Organising Committee, International Conference of the International Association for Computer Methods and Advances in Geomechanics, May 1991, Cairns, Australia and co-editor of the conference proceedings.

1992-present Member, Committee CE/25 Standards Australia.

2000 Chair, Organising committee for the John Booker Memorial Symposium, Sydney, November 2000, and co-editor of the conference proceedings.

1998-99 Deputy Chairman and Treasurer, Australian Geomechanics Society.

2000-01 Chairman, Australian Geomechanics Society.

2005-09 Vice-President for Australia-New Zealand, International Society for Soil Mechanics and Geotechnical Engineering.

Continuing Education

1983 Organiser of a graduate short course on "Geomechanics of Energy Recovery", University of Sydney.

1985 & 90 Lecturer in a graduate short course on "Modern Methods in the Design of Pile Foundations", University of Sydney.

1987 Lecturer in a graduate workshop on "Modern Methods of Geotechnical Analysis and Testing", University of Queensland.

1988 Lecturer in a graduate short course on "The Design of Drilled Shaft Foundations", University of Sydney.

1986 & 89 Twice awarded an Engineering Foundation Fellowship by the University of Western Australia, in January 1986 and January 1989. On both occasions this involved a 4-week period of intensive research with the Geomechanics Group and public lectures at the University of Western Australia.

1994 Co-organiser and lecturer in a special training course presented in Sydney and Melbourne, Australia, to senior highway managers and engineers from PR China on "Design and Construction of Highway Embankments on Soft Soil".

Journal Reviews

Australian Geomechanics Journal, published by the Australian Geomechanics Society.

Geotechnical Engineering, published by the South-East Asian Geotechnical Society.

Civil Engineering Transactions, published by the Institution of Engineers, Australia.

Géotechnique, published by the Institution of Civil Engineers, London.

Journal of the Geotechnical Engineering Division, published by the American Society of Civil Engineers.

Engineering Structures, published by Elsevier Science Ltd.

Pavement Engineering, published by

International Journal for Numerical and Analytical Methods in Geomechanics, published by John Wiley and Sons Ltd.

Computers and Geotechnics, published by Elsevier Applied Science Publishers Ltd.

Reviews for Granting Bodies

Australian Research Council.

National Science Foundation, USA.

National Science and Engineering Research Council, Canada.

Science and Engineering Research Council, UK.

Department for Natural and Technical Sciences, Austria.

The Research Council of Norway.

University Grants Commission, Hong Kong.

Editorial Activities

1982-85 Member, Editorial Board, Australian Geomechanics News, Australian Geomechanics Society.

1988-95 Member of the Editorial Board, *Computers and Geotechnics*, an international journal published by Elsevier Applied Science Publishers Ltd, London.

1992-07 Associate Editor and reviewer, *Canadian Geotechnical Journal*, published by the National Research Council of Canada.

1993-05 Member of the Editorial Board, *International Journal for Solids and Structures*, published by Elsevier Applied Science Publishers Ltd, London.

1994-00 Member of the Editorial Board, *International Journal for Numerical and Analytical Methods in Geomechanics*, published by John Wiley and Sons Ltd, New York.

1997-00 Member of the Editorial Board, *Mechanics of Cohesive-Frictional Materials*, published by John Wiley and Sons Ltd, New York.

1997- Member of the Editorial Board, *Journal of Mechanics of Materials and Structures*, published electronically by

2000- Co-editor, *International Journal of Geomechanics*, published by CRC Press, Boca Raton, Florida, USA (2000-2002) and by the American Society of Civil Engineers (since 2003).

ENGINEERING PROJECT EXPERIENCE

John Carter's experience with engineering projects has required him to work in Australia, Britain and the USA. He has authored more than 60 major consulting reports for a range of clients, including mining companies, oil companies, other engineering consultancies and lawyers. Examples of this experience are listed below.

Consultancies

1977-78 Consultant to Exxon Production Research Company, Houston, Texas. Investigation of the problem of offshore pile installation and its effects on clay soils.

1978 Consultant to Amoco Production Research Company, Tulsa, Oklahoma. Predicting the stress and time-dependent strength changes in clay due to the installation of driven piles and involved a visit to Tulsa, Oklahoma for consultation and to install a special purpose computer program written to analyse this problem.

1980 Consultant to Soil Surveys Pty Ltd geotechnical consultants, Brisbane. Performing finite element studies of foundations for several proposed high-rise buildings on the Gold Coast, Queensland.

1981-82 Consultant to Peter Hollingsworth and Associated Consultants, Brisbane. Investigations, analyses and design of reclamation works for a proposed large housing estate in southern Queensland on a soft soil site.

1981 Consultant to Mt Isa Mines Ltd, Mt Isa, Queensland. A theoretical study of the pore water pressures developed in mine fill placed in excavated mine stopes.

1983 Consultant to Woodside Offshore Petroleum Ltd, Perth. Finite element studies of proposed grout plugs for piles of the North Rankin A offshore gas production platform.

1983-84 Consultant to Kembla Coal and Coke Pty Ltd, Wollongong. Two separate studies were carried out for this company:

- prediction of stresses around mine workings at Coal Cliff Colliery, NSW, and
- finite element modelling of proposed longwall mining operations at Darkes Forest Colliery, NSW.

1984-89 Consultant to Woodside Offshore Petroleum Pty Ltd, Perth. Testing soil and rock core specimens, the results of which have been used in determining remedial measures to be taken for foundations of the North Rankin A platform and directly in the design of the proposed Goodwyn platform. Review of the preliminary foundation design for the proposed Goodwyn platform, and conducted finite element studies of the stability of proposed open boreholes in the seabed at the site of the Goodwyn platform.

1985 Consultant to Wholohan Grill and Partners Pty Ltd, Consulting Engineers, Sydney. Engineering advice and testing of rock core samples from the Harriet Platform Site, North West Shelf of Australia. The results were used in the design of foundations for the offshore platform.

1987 Consultant to Woodburn Fitzhardinge Geotechnical Consulting Engineers, Adelaide, South Australia, on the design of bored pier foundations.

1988 Consultant to BP Coal Australia, Sydney, on pile foundations for a coal storage bin.

1989 Consultant to CSR Humes, Brisbane, on behaviour of buried flexible pipes.

1990 Consultant to BHP Engineering, Sydney, on the behaviour of offshore piles.

1991 Consultant to CSR Humes, Melbourne and Sydney, on the soil-structure interaction behaviour of a thin reinforced concrete arch bridge constructed on the F4 freeway in Sydney.

1993 Consultant to Woodside Offshore Petroleum Ltd, Perth, on the stability of open boreholes in carbonate soils - Goodwyn platform.

1993 Consultant to BHP Engineering, Sydney, on the behaviour of stone columns under iron ore stockpiles on a soft clay site at Port headland, Western Australia.

1993 Consultant to Woodside Offshore Petroleum Ltd, Perth, on liquefaction studies of anchor boxes - North Rankin A platform.

1994 Consultant to Concrete Pipe Association of Australasia, on loads on box culverts.

1995 Consultant to Elgas Ltd, providing a review of engineering reports on the effects of proposed blasting on storage tanks at Port Botany.

1996- As director of Advanced Geomechanics, acted as consultant on various offshore development projects, North West Shelf of Australia to clients including Woodside, Wapet, Shell. Projects include shallow and deep foundations, liquefaction studies for foundations and pipelines.

1998 Finite Element Study of the raising of Warragamba Dam, for Compumod.

1999 Geotechnical Reviewer, retained by Leighton Contractors, for the design of the Yelgun to Chinderah Pacific Highway bypass.

2002 Consultant to CSR Limited, on the failure of Bebo Arch units at Allens Creek Tributary, near Wilton, NSW.

2002-03 Consultant to the Concrete Pipe Association of Australia on Behaviour of Buried Pipes.

2002-04 Consultant to GHD-Longmac, on the design of underground caverns for the Chatswood to Parramatta Rail Link.

2005 Consultant to CSR Limited, on the failure of Bebo Arch units at South Walker Creek Mine, Queensland.

2009 Consultant to GHG Geotechnics on the design of the new Cotter Dam, Canberra, ACT.

2012 Consultant to BP on temperature effects on a seabed pipeline in the Nile delta.

Expert Witness

1989-90 Expert witness for Meehan-Yeates, Geotechnical Consultants, Surfers' Paradise, on the failure of a large crib wall structure.

1997-99 Expert witness, retained by NSW National Parks and Wildlife Service, on the Thredbo landslide.

1998-00 Expert witness, retained initially by Sparke Helmore and later by Arnold Bloch Liebler (solicitors), on the failure of a cofferdam on the New Southern Railway, Sydney.

2000 Expert witness, retained by A.O. Ellison & Co. (solicitors), to comment on a matter of alleged negligence with respect to the design, construction and maintenance of an industrial car park, Sydney.

2001 Expert witness, retained by Freehills (solicitors), to comment on the failure of buried sewerage structures, Perth.

2004 Expert witness, retained by Connell Wagner, on the collapse of a section of the roof of the cross-city tunnel, Sydney, involving the death of a worker.

2004-05 Expert witness, retained by McCullough Robertson, Lawyers, Brisbane, to investigate the failure of Classic Arch units at South Walker Creek Mine, Queensland.

2006-07 Expert witness, retained by Phillips Fox, Brisbane, to comment on the settlement of a house at Burleigh Waters Estate, Queensland.

2007-09 Expert witness, retained by Sparke Helmore, Brisbane, to comment on the settlement of a house at Burleigh Waters Estate, Queensland.

2012-14 Expert witness, retained by HWL Ebsworth, to comment of the causes of the failure of a buried arch structure.

Professional Reports

- Author of more than 60 major consulting reports for a range of clients including mining companies, oil companies and engineering consultancies (see separate list).

REFEREED PUBLICATIONS

1. Carter, J. P. (1975). Discussion on Finite Elasto-Plastic Deformation-I. Theory and Numerical Examples. *International Journal of Solids and Structures*, 11: 1167-1169.
2. Carter, J. P., Poulos, H. G. and Booker, J. R. (1975). Effects of Seepage on Embankment Deformations Due to Water Loading. *Proceedings 2nd Australian-New Zealand Conference on Geomechanics*, Brisbane, Institution of Engineers, Australia: 159-163.
3. Booker, J. R., Carter, J. P. and Small, J. C. (1976). An Efficient Method of Analysis for the Drained and

Undrained Behaviour of an Elastic Soil. *International Journal of Solids and Structures*, 12: 589-599.

4. Carter, J. P., Booker, J. R. and Davis, E. H. (1977). Finite Deformation of an Elasto-Plastic Soil. *International Journal for Numerical and Analytical Methods in Geomechanics*, 1: 25-43.

5. Carter, J. P., Small, J. C. and Booker, J. R. (1977). A Theory of Finite Elastic Consolidation. *International Journal of Solids and Structures*, 13: 467-478.

6. Carter, J. P. (1978). CAMFE, A Computer Program for the Analysis of a Cylindrical Cavity Expansion in Soil, Cambridge University**:** 80p.

7. Carter, J. P. (1978). The Expansion of a Cylinder Under Conditions of Finite Plane Strain. *Nuclear Engineering and Design*, 47: 101-106.

8. Carter, J. P., Randolph, M. F. and Wroth, C. P. (1978). A Report to Exxon Production Research Company on the Behaviour of Clay Around an Expanded Cylindrical Cavity, Cambridge University**:** 73p.

9. Carter, J. P., Booker, J. R. and Small, J. C. (1979). The Analysis of Finite Elasto-Plastic Consolidation. *International Journal for Numerical and Analytical Methods in Geomechanics*, 3: 107-129.

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12. Carter, J. P., Randolph, M. F. and Wroth, C. P. (1979). Stress and Pore Pressure Changes in Clay During and After the Expansion of a Cylindrical Cavity. *International Journal for Numerical and Analytical Methods in Geomechanics*, 3: 305-322.

13. Clarke, B. G., Carter, J. P. and Wroth, C. P. (1979). In situ Determination of the Consolidation Characteristics of Saturated Clays. *Proceedings 7th European Conference on Soil Mechanics and Foundation Engineering*, Brighton, British Geotechnical Society, London, 2: 207-211.

14. Randolph, M. F. and Carter, J. P. (1979). Discussion of Effects of Driving and Subsequent Consolidation on Behaviour of Piles. *International Journal for Numerical and Analytical Methods in Geomechanics*, 3: 213-215.

15. Randolph, M. F. and Carter, J. P. (1979). The Effect of Pile Permeability on the Stress Changes Around a Pile Driven into Clay. *Proceedings 3rd International Conference on Numerical Methods in Geomechanics*, Aachen, A.A. Balkema, Rotterdam, 1: 1097-1105.

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17. Wroth, C. P., Carter, J. P. and Randolph, M. F. (1979). Stress Changes Around a Pile Driven into Cohesive Soil. *Recent Developments in the Design and Construction of Piles*, Institution of Civil Engineers, London**:** 345-354.

18. Carter, J. P., Booker, J. R. and Wroth, C. P. (1980). The Application of a Critical State Soil Model to Cyclic Triaxial Tests. *Proceedings 3rd Australia-New Zealand Conference on Geomechanics*, Wellington, N.Z., 2: 121-126.

19. Carter, J. P., Booker, J. R. and Wroth, C. P. (1980). A Critical State Soil Model for Cyclic Loading. *Proceedings International Symposium on Soil Under Cyclic and Transient Loading*, Swansea, A.A. Balkema, Rotterdam: 433-434.

20. Carter, J. P. (1981). Stress Changes in Clay Due to Installation of a Displacement Pile. *Australian Geomechanics News*, 2: 45-48.

21. Carter, J. P. and Booker, J. R. (1981). Consolidation Due to Lateral Loading of a Pile. *Proceedings 10th International Conference on Soil Mechanics and Foundation Engineering*, Stockholm: 647-650.

22. Carter, J. P. (1982). A Numerical Method for Pile Deformations Due to Nearby Surface Loadings. *Proceedings 4th International Conference on Numerical Methods in Geomechanics*, Edmonton, Canada, A.A. Balkema, Rotterdam: 811-817.

23. Carter, J. P. (1982). Predictions of the Non-homogeneous Behaviour of Clay in the Triaxial Test. *Géotechnique*, 32: 55-58.

24. Carter, J. P. and Booker, J. R. (1982). The Analysis of Consolidation and Creep Around a Deep Circular Tunnel in Clay. *Proceedings 4th International Conference on Numerical Methods in Geomechanics*, Edmonton, Canada, A.A. Balkema, Rotterdam: 537-544.

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International Journal of Solids and Structures, 18(12): 1059-1074.

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27. Carter, J. P., Booker, J. R. and Wroth, C. P. (1982). A Critical State Model for Cyclic Loading. *Soil Mechanics - Transient and Cyclic Loads*. G. N. Pande and O. C. Zienkiewicz. London, John Wiley and Sons. Chapter 9**:** 219-252.

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33. Booker, J. R. and Carter, J. P. (1984). Consolidation of a Saturated Elastic Half Space Due to Fluid Extraction from a Point Sink. *Proceedings Engineering Foundation Conference on "Understanding the Compaction Phenomena in Subsidence"*, New Hampshire, USA: 31-64.

34. Booker, J. R. and Carter, J. P. (1984). Steady State Response of Elastic Ground Containing a Heat Source. *Proceedings 9th Australasian Conference on Mechanics of Structures and Materials*, Sydney, Australia: 86-91.

35. Carter, J. P. and Booker, J. R. (1984). Determination of the Deformation Modulus of Rock from Tunnel and Borehole Loading Tests. *Proceedings 4th Australia-New Zealand Conference on Geomechanics*, Perth, Australia, Institution of Engineers, Australia, 2: 509-513.

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44. Fahey, M. and Carter, J. P. (1986). Some Effects of Rate of Loading and Consolidation on Pressuremeter Tests in Clay. *Proceedings Interpretation of Field Testing for Design Parameters*, Adelaide, Institution of Engineers, Australia: 50-55.

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Structures, 23: 369-385.

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48. Carter, J. P. and Booker, J. R. (1987). Analysis of Pumping a Compressible Pore Fluid from an Elastic Half Space. *Computers and Geotechnics*, 4: 21-42.

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78. Alehossein, H. and Carter, J. P. (1990). On the Implicit and Explicit Inclusion of Joints in the Analysis of Rock Masses. *Proceedings International Conference on the Mechanics of Jointed and Faulted Rock*, Vienna, Austria, A.A. Balkema, Rotterdam: 487-494.

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